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ABSTRACT

Reinforcing contact with toys by providing chocolate milk odors, and tactile reinforcement helped to reduce the self injurious behaviors, feces smearing, and destructive behavior of a profoundly retarded deaf/blind hyperactive female. The underlying assumption of the approach was that increasing toy contact would result in improved alternative leisure skills. Twice daily toy contact sessions began with physical prompting. Results revealed that toy contact increased in duration for all phases of intervention and the need for physical prompts decreased. Although object contact time improved, varied use of the object did not occur. (CL)

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REDUCTION OF DISRUPTIVE BEHAVIORS OF A HYPERACTIVE PROFOUNDLY RETARDED PERSON

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ABSTRACT

A strategy potentially effective for managing problem behaviors of a hyperactive retarded client involves the reinforcement of contact with toys to improve alternative leisure skills. This strategy was evaluated with a profoundly retarded deaf and blind female who was reported to engage in self-injurious behaviors as well as feces smearing and property destruction.

Toy contact training sessions were conducted twice daily. Intervention consisted of an ABAB design with several phases occurring within the original B phase. Object contact was initially physically prompted. A variety of consequences were presented, e.g., chocolate milk, odors, social contact, etc.

Data indicate that toy contact time increased above baseline for all phases of intervention. The need for physical prompts diminished to zero near the final stage of the project. Inappropriate behaviors initially increased relative to baseline rates, then declined slowly over the course of training.

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INTRODUCTION

This project was initiated for the management of disruptive behaviors of a deaf/blind hyperactive female who had recently changed living areas. The client engaged excessive disruptive activity, e.g., grabbing, bedding and pulling it to the floor, and frequently disrobing. These behaviors were problematic to unit staff because of potential health hazards for others, e.g., tripping over clothing, and having only dirty linen available. Also frequently, the client attempted to leave the immediate living unit, i.e., she would feel her way along the walls until coming to other rooms. There she would resume grasping and discarding objects.

Staff efforts to control disruption consisted of locking the lower half of her bedroom door or placing her in a high-rise bed which also served to control disruption to her own room. As a result, the client engaged in feces smearing. In a group toyplay program she behaved similarly, e.g., made brief contact with objects and tried to leave the area.

Casual observations indicated that current efforts were not encouraging alternative behavior, e.g., leisure and self-help skills. In addition, staff would provide attention and physical contact contingent upon disruptive and disrobing behaviors. Finally, it was assumed that the new environment elicited exploratory behaviors which set the conditions for inappropriate attention by staff, e.g., when

exploring she would be disruptive, thus encouraging staff attention which ultimately reinforced disruptive behaviors.

It could be hypothesized that the client.s apparent random behaviors of contact and discard constituted a lack of play behaviors that should have otherwise appeared during exploratory contact (Collard, 1979). That is to say, the behaviors did not result in different (novel) uses of objects encountered during contact and discard (Fein, 1979). Alternatively, the contact and discard behaviors can be construed as exploratory responses, especially in light of her recent transfer. Such exploration responses were occurring perhaps for the purpose of finding appropriate objects for interaction. Finally, such contact and discard behaviors may be due to both the occurrence of exploration and the absence of play. It would appear, however, that contact and discard, and/or exploration were being reinforced, but not play behaviors as such. Thus it would be expected that such exploration responses would increase and appear very disruptive to living area staff, but play itself was not likely to appear without either more prolonged contact or some signal to the client that certain objects should be more preferred than others. In an effort to reduce disruptive behaviors and to improve play behaviors an object contact training program was studied on the assumption that increasing contact duration would result in improved play behaviors.

METHODS

Participant and Setting The participant was a 34 year old profoundly retarded, deaf, blind female who was indicated as hyperactive by medical reports and by elevated scores in domain XI of AAMD Adaptive Behavior Scale assessments. The client was also assessed to have minimal self-help, leisure, and social skills She had been recommended for programs to decrease inappropriate behaviors - smearing feces, stripping, and disruptive manipulation of the environment.

The living area consisted of a room measuring 35 feet x 22 feet housing nine beds and one high-sided bed, plus some chairs and a few chests of clothing. Generally the residents were taken to a dayroom. The target client, however, remained in the closed bedroom as she would not remain in the dayroom.

The bedroom was chosen as the training site due to the her familiarity with the area. The setting provided ample room for the resident to ambulate and explore in her apparently usual manner.

MATERIALS: Materials used in the training situation consisted of a target object (stuffed toy) to which contact responses would be reinforced.

PROCEDURES: The program was run twice daily for fifteen minutes each session. Initially, chocolate milk was provided upon prompted contact with the toy. Subsequently, a

variable interval (VI) contingency of approximately five seconds was used, and adjusted to VI-10. Because of the degree of her ambulation and other interfering responses, (e.g., pulling hands into sleeves) it was impossible to maintain strict VI schedules. Thus, for purposes of this project the contingencies are to be considered as approximately averaging the indicated time intervals.

An ABAB design was used for analysis of the treatment strategy. However, due to a variety of constraints the original intervention (B condition) consisted of several phases.

In baseline sessions , the client was prompted to make contact with the toy, e.g., her hand was placed on the toy and physical prompts were used to prolong contact. If the subject disengaged from touching the toy or threw it, the trainer retrieved the toy and again prompted contact. No reinforcers were available in baseline.

Intervention consisted of a series of 10 phases. In the 1st phase chocolate milk was contingent upon contact (prompted or unprompted) with the toy. Tactile reinforcers (such as pats on the back) were also employed. In phase 2 odors were used. In phase 3 milk and odors were counter-balanced within sessions. In phase 4 the contingency strategy was changed from contact to a variable interval schedule requiring contact for approximately 5 seconds. In phases 5 and 6 client warm-up strategies, e.g., staff assisting her

in walking and riding in a wheelchair were explored. In phases 7 and 8 other consequences were tried in response to reports that perhaps the client was allergic to milk. When allergic reactions were discounted training returned to the use of chocolate milk (phase 9) at the VI-5 contingency and in phase 10 the contingency was changed to approximately VI-10. Following phase 10, a return-to-baseline condition was instituted.

For object contact, both event and duration data were taken. The sum of the duration of each of contact throughout the session was divided by the total number of contacts yielding a dependent variable of average contact time. In order to assess the necessity of prompting the client, data was taken on the percentage of contacts per session that required physical prompts. This data was taken, in part, to assess the possibility that staff contact may be reinforcing. Alternatively, prolonged unprompted contact would also indicate that exploratory behaviors of contact and discard were manageable. Finally, in order to assess the impact of this strategy upon her very difficult behaviors of stripping, environmental disruption and feces smearing, living area staff provided a log from which a very rough measure for inappropriate behavior was obtained, e.e., the number of reported instances of problem behaviors per six day block of time.

RESULTS

Reliability was calculated according to the following proce-

dure: For each contact attempt, the duration of contact as recorded by both observers was compared and a percentage of reliability was generated according to the formula agreements/number of contacts. Reliability observations were made five times over the course of treatment and averaged 94.5%.

Inspection of Table 1 indicates that, relative to baseline, average contact time increased across intervention phases. As can be seen, however, average contact time increased only slightly in phase 1 and improved substantially in the subsequent phases 5, 6, 9, and 10.

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Insert Table 1 about here

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A return to baseline condition indicated that while average contact time decreased relative to phase 10 (122.5 vs 131.2 seconds) it did not return to the level of the original baseline, indicating perhaps the presence of secondary reinforcers which maintained contact. Finally, a return to intervention indicated an improvement in average contact relative to both baseline levels.

It is of some interest to compare phases 1, 9, and 10 where only chocolate milk was used as a consequence. Differences in these phases involved only contingency management. In phase 1 milk was provided immediately upon toy contact. In phase 9 the contingency was an approximate VI-

5, and in phase 10 an approximate VI-10. It would appear that the improvement of contact time in phase 9 relative to phase 1 (21.9 vs 6.1) occurs because of the VI-5 contingency. Further improvements in phase 10 appear related to the contingency for reinforcing even longer contact intervals. While this effect in phase 10 was essentially immediate e.g., apparent by the second session, almost one half the sessions of phase 10 were characterized by little subsequent improvement and the presence of marked variability throughout.

Further inspection of Table 1 reveals that phases 7 and 8, yielded reduced average contact time relative to phases 6 and 9 (11.7 and 17.6 seconds vs 57.10 and 21.9 seconds respectively). The apparent reduction in contact time during phases 7 and 8 may be related to the use of different consequences e.g., praise, edibles, and water, which may have had less reinforcement value. The shift in consequences occurred as a result of a possible allergy to milk. Parenthetically, it is of interest to note that average contact time was greater in that portion of phase 6 when milk alone was provided than in phase 9 (52.42 vs 21.9 seconds). Because of the sequential nature of phase changes reasons for the phase IX decrease in contact time are not clear. Satiation is a one possiibility since in phase 6 availability of chocolate milk during the session lasted only 7 rather than the full 15 minute session duration. Another possibility is that a warm-up procedure of moving

the client in a wheelchair was additionally reinforcing.

Our attempt to look systematically at milk and odors as consequences yielded some interesting results. Inspection of Table 2 reveals that there appears improved

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Insert Table 2 about here

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contact time across phases 1, 2, (milk and odor only) and 3 (split session) relative to baseline. However, the changes in phases 4, 5, and 6 appear to indicate that the chosen consequences also may have an interactive effect with other task factors, i.e., contingency changes and warm-up activities. Initially, our attention was focused upon phases 1, 2, and 3 and in phase 1 average contact time increased with chocolate milk as a consequence. Contact time subsequently decreased in Phase 2 where odors replaced milk (4.7 vs 6.1 seconds) and when both milk and odors were present (phase 3) average contact time was essentially unchanged (4.05 vs 4.7 seconds). It is of interest to note, however, the larger proportion of contact time occurs in the milk only portion of phase 3 sessions. The failure to substantially improve contact time may have been related to the contingency employed. At this time, consequences were contingent only upon object contact. The apparent validity of of this notion is supported by our change in phase 4 (e.g., delaying reinforcement for an average of five seconds after contact was made). In this phase, as in phase 3, most

improvements in contact time occurred with milk as the consequence.

Subsequently, it was noted that a procedural problem may have prevented some of the anticipated improvements in object contact. Upon initiation of toy contact training, the client would begin ambulating, suggesting that prior to the training session she may have been in bed or receiving interaction from staff resulting a temporary reduction of her walking about. Thus, phase 5 included a two-minute warm-up time in which the client was walked around the training area. In phase 6, staff gave her a brief wheelchair ride prior to the initiation of training as a warm-up procedure. It can be seen that under both conditions of warm-up, contact time improved for both types of consequences, e.g., milk and odors. The improvements in phase 5 and 6 appear to favor odors as a consequence. However, the extremely large range for mean contact time makes it difficult to have much confidence in the outcome. The nature of the interaction of warm-up activities with types of consequences is not immediately evident. In part, it may only reflect a "Hawthorn-type effect" where any changes are correlated with improvements. Alternatively, the warm-up activities may have provided some cueing function, taken on secondary reinforcing properties, or have been more reinforcing than either milk or odors.

The development of independent contact behaviors is revealed in Table 1. Generally, it appears that over phases 1 thru 9

there was only a brief reduction in the percentage of prompted contacts, i.e., phases 1, 2, and 3. The reason for this early drop might be related to the presence of a differential consequence procedure. The subsequent loss of this effect remains unclear. However, prompted contact declined in phase 10 and further decreased during the return to baseline condition and subsequent reinstatement of the phase 10 condition. Informal observations indicated of the client some picking up and holding toys (now more readily available) at times other than during training. Perhaps these self-initiated contacts were reinforced by staff, leading to the current observed improvements in independent contact during training sessions. However, we did not directly observe occurrences of these extra-training object contacts despite some additional observation time alloted to the case.

Our data regarding possible decreases in her disruptive behavior are somewhat less formal than we would prefer. Due to our own staff shortages, it was necessary to rely on the observations of residential staff who agreed to continue a behavior log regarding the client. Although, often inbedded in opinion and expressions of frustration, data regarding stripping, head banging, and feces smearing was extracted. To a lesser extent, data regarding her disruptive exploration was also available. Preceeding phase 1 of our intervention, the client averaged 18.3 instances of such disruptive behaviors per six day reporting period for

three reporting periods. We would contend that this estimate is conservative. Initially, the number of instances rose over the next seven recording periods to an average of 23.8 occurrences per six days, but has subsequently decreased to approximately 10 per a six day reporting period.

Originally, we had assumed that if the duration of contact with the stuffed toy could be increased then play behaviors (varied use of the toy) would be observed. In effect, we could then feel more confident that her behaviors of contact and discard were indeed exploration responses and she only needed a method to identify environmental objects appropriate for interaction. While successfully improving object contact time, play (varied use) as such did not appear. That is, our client consistently clutched the toy in one hand without much change in response topography. Thus, it would appear that for this case there was a lack of play behaviors as well as a lack of a method to identify appropriate objects for interaction.

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TABLE 1

The mean seconds of object contact duration and the percentage of prompted contact per condition

	Base line	Phase I	Phase II	Phase III	Phase IV	Phase V	Phase VI	Phase VII	Phase VIII	Phase IX	Phase X	Base line	Phase X
MEAN CONTACT TIME	2.87	6.1	8.7	4.0	5.8	18.0	57.0	11.7	17.6	21.9	131.2	123.0	331.0
PERCENT PROMPTED CONTACT	100.	44.5	44.7	60.8	82.6	77.6	88.5	100.	88.5	96.4	37.1	11.1	0.0

TABLE 2

The mean and range for object contact duration in seconds

		CONDITIONS						
		Base Line	Phase I	Phase II	Phase III	Phase IV	Phase V	Phase VI
		(2.81)	Milk Only	Odors Only	Split Sess	VR-5	Walk Time	Chair Time
MEAN	Milk		6.1		4.7	7.6	17.6	52.4
	Odors			4.7	3.4	4.7	18.6	61.9
	Combined				4.0	5.0	18.0	57.1
RANGE	Milk		3.2		3.0	3.2	8.5	29.5
	Odors			3.5	4.0	2.3	34.6	50.0
	Combined				4.0	3.6	31.5	41.0